**IN THE SPECIFICATION**

Please amend the specification by replacing the entire section "Cross-Reference To Related Application" on page 1 with the following:

This application is a Continuation-in-Part of Application Serial Number 10/036,953, filed October 19, 2001, now US Patent No. 6,661,867 B2, entitled "Tomographic Scanning X-Ray Inspection System Using Transmitted And Compton Scattered Radiation".

Please amend the specification by replacing the paragraph beginning at page 12, line 11, with the following:

FIG. 5 shows an alternative, U shaped transmission detector 17 comprised of scintillators 30, 31, and 32. Detector 17 is provided with rounded corners 83 generating a constant cross section for the whole detector. Preferably, corners 83 may be divided into a plurality of fibers or laminated to minimize light losses. A constant cross section, also called adiabatic, has the least losses for light conduction via total reflection. Photodetector 38 is located at one end of a segment, e.g. an end proximate to 45 degree facets 80 as depicted by FIG. 5. Preferably, this pickup end has the shape of a semi-paraboloid. That shape focuses more radiation than any other shape into photodetector 38, mounted atop the focal point of the semi-paraboloid. Alternatively, a multifaceted approximation of a semi-paraboloid is used in place of the difficult to make semi-paraboloid in this or other scintillator elements of the present invention, wherein the semi-paraboloid shape is desirable. Such multi-faceted shapes are to be understood as being encompassed by the term "semi-paraboloid" as used herein. As a further alternative, there is used a minimum of just two facets at 45 degree in space, as shown in Fig. 5. The opposite end of the segment -- the end without the photodetector -- has two 45 degree walls which reflect most of the light back into the segment by total reflection.

Please amend the specification by replacing the paragraph beginning at page 14, line 15, through page 15, line 8,with the following:

In FIG. 8 there is shown a detector configuration 100 for obtaining dual energy information by properly adjusting the thickness of inner transmission detector 130 and outer transmission detector 120. Inner detector 130 is generally U shaped, and comprises scintillators 101, 102, and 103, as well as photodetectors 108 and 110. Outer detector 120 comprises scintillators 104, 105 and 106, as well as photodetectors, 107 and 109. Preferably, the corners of the transmission and backscatter detectors used in the present apparatus are divided into a plurality of fibers or laminated to minimize light losses, as described in connection with detector 17 (see FIG. 5). The transmitted pencil X-ray beam first interacts with the inner detector 130. By suitably selecting the detector material and thickness the inner detector 130 will preferably absorb lower energy. Material and thickness of outer detector 120 are suitably selected to absorb the higher energy X-rays that traverse and exit inner detector 130. Alternatively, a sheet of filtering material 131, such as copper, steel or the like, could be disposed between the inner detector 130 and outer detector 120 to increase discrimination between the high and low energy photons. The signal strengths of the inner and outer detectors are compared to determine the average atomic number Z of the object. Further comparison of the dual energy information and scatter information gives a more accurate Z determination and aids in separating overlying materials.